

The following is a complete listing of all claims in the application, with an indication of the status of each:

Listing of claims:

- 1 1 (Currently amended) A computer implemented method of resource allocation to
2 yield a benefit comprising the steps of:
3 associating each customer's demand with a benefit gained; and
4 finding a time-varying resource allocation of resources that would yield a
5 benefit which is based on the benefit gained associated with one or more
6 customer's demands; and
7 implementing the time-varying allocation of resources amongst one or
8 more customers to yield said benefit.
- 1 2 (Currently amended). The computer implemented method of resource allocation
2 as recited in claim 1, further comprising the steps of:
3 discounting future benefits; and
4 finding optimal allocations of resources from current time through current
5 time plus lookahead based on discounted benefit and forecast demand,
6 wherein the step of discounting future benefits is based on a future discounting
7 algorithm.
- 1 3 (Currently amended). The computer implemented method of resource allocation
2 recited in claim 2, wherein the future discounting algorithm is based on a policy
3 which, when faced with a choice between a guaranteed benefit immediately and a
4 potential benefit in the future, a decision is made by comparing the guaranteed
5 benefit value with a discounted value of the potential future benefit.
- 1 4 (Currently amended). The computer implemented method of resource allocation
2 recited in claim 2, wherein the future discounting algorithm is a deterministic
3 algorithm that achieves a competitive ratio of $(1 + 1/L) (L + 1)^{1/L}$, where L is a
4 lookahead factor which models some amount of future demand known to a
5 provider of the resource.

1 5 (Currently amended) The computer implemented method of resource allocation
2 recited in claim 2, wherein the algorithm is an intermittent reset algorithm that
3 achieves a competitive ratio of $1 + 4/(L-7)$, where L is a lookahead factor which
4 models some amount of future demand known to a provider of the resource.

1 6 (Currently amended) The computer implemented method of resource allocation
2 as recited in claim 1, wherein resource allocation is done to maximize a benefit.

1 7 (Currently amended). The computer implemented method of resource allocation
2 as recited in claim 1, wherein the benefit is a tangible benefit.

1 8 (Currently amended). The computer implemented method of resource allocation
2 as recited in claim 7, wherein the tangible benefit is a profit and resource
3 allocation is done to maximize the profit.

1 9 (Currently amended) The computer implemented method of resource allocation
2 as recited in claim 1, wherein the benefit is an intangible benefit.

1 10 (Currently amended) The computer implemented method of resource allocation
2 as recited in claim 9, wherein the intangible benefit is customer satisfaction and
3 resource allocation is done to maximize customer satisfaction.

1 11 (Currently amended) The computer implemented method of resource allocation
2 as recited in claim 1, wherein the resource is computer cycles and resource
3 allocation is done to more efficiently solve computationally intensive problems.

1 12 (Currently amended) A computer implemented method of resource allocation
2 to yield a benefit comprising the steps of:
3 modeling the a resource allocation problem mathematically;
4 in the model obtained from said modeling step, dividing time into intervals
5 of fixed length based on the assumption that demand is uniformly spread
6 throughout each such interval; and

7 associating each customer's demand with a benefit gained; and
8 finding a time-varying resource allocation of resources that would
9 maximize a benefit which is based on the benefit gained associated with one or
10 more customer's demands; and
11 implementing the time-varying allocation of resources amongst one or
12 more customers to maximize said benefit gained.

1 13 (Currently amended) The computer implemented method of resource allocation
2 as recited in claim 12, further comprising the steps of:
3 discounting future benefits; and
4 finding optimal allocations of resources from current time through current
5 time plus lookahead based on discounted benefit and forecast demand, wherein the
6 step of discounting future benefits is based on a future discounting algorithm.

1 14 (currently amended) The computer implemented method of resource allocation
2 recited in claim 13, wherein the future discounting algorithm is based on a policy
3 which, when faced with a choice between a guaranteed benefit immediately and a
4 potential benefit in the future, a decision is made by comparing the guaranteed
5 benefit value with a discounted value of the potential future benefit.

1 15 (Currently amended) The computer implemented method of resource allocation
2 recited in claim 13, wherein the future discounting algorithm is a deterministic
3 algorithm that achieves a competitive ratio of $(1 + 1/L) (L + 1)^{1/L}$, where L is a
4 lookahead factor which models some amount of future demand known to a
5 provider of the resource.

1 16 (Currently amended) The computer implemented method of resource allocation
2 recited in claim 12, wherein the algorithm is an intermittent reset algorithm that
3 achieves a competitive ratio of $1 + 4/(L-7)$, where L is a lookahead factor which
4 models some amount of future demand known to a provider of the resource.

1 17 (Currently amended) The computer implemented method of resource
2 allocation as recited in claim 12, wherein the benefit is a tangible benefit.

- 1 18 (Currently amended). The computer implemented method of resource
2 allocation as recited in claim 17, wherein the tangible benefit is a profit and
3 resource allocation is done to maximize the profit.
- 1 19 (Currently amended) The computer implemented method of resource allocation
2 as recited in claim 12, wherein the benefit is an intangible benefit.
- 1 20 (Currently amended) The computer implemented method of resource allocation
2 as recited in claim 19, wherein the intangible benefit is customer satisfaction and
3 resource allocation is done to maximize customer satisfaction.
- 1 21 (Currently amended) The computer implemented method of resource allocation
2 as recited in claim 12, wherein the resource is computer cycles and resource
 allocation is done to more efficiently solve computationally intensive problems.
- 1 22. (Original) A method for server allocation in a Web server “farm” based on
2 limited information regarding future loads to achieve close to greatest possible
3 revenue based on an assumption that revenue is proportional to the utilization of
4 servers and differentiated by customer class comprising the steps of:
5 modeling the server allocation problem mathematically;
6 in the model, dividing time into intervals of fixed length based on the
7 assumption that each site’s demand is uniformly spread throughout each such
8 interval;
9 maintaining server allocations fixed for the duration of an interval, servers
10 being reallocated only at the beginning of an interval, and a reallocated server
11 being unavailable for the length of the interval during which it is reallocated
12 providing time to “scrub” the old site (customer data) to which the server was
13 allocated, to reboot the server and to load the new site to which the server has
14 been allocated, each server having a rate of requests it can server in a time interval
15 and customers share servers only in the sense of using the same servers at different
16 times, but do not use the same servers at the same time; and
17 associating each customer’s demand with a benefit gained by the service

18 provider in case a unit demand is satisfied and finding a time-varying server
19 allocation that would maximize benefit gained by satisfying sites' demand.

1 23. (Original) The method for server allocation in a Web server "farm" as recited
2 in claim 22, further comprising the steps of:
3 discounting future benefits; and
4 finding optimal allocations of resources from current time through current
5 time plus lookahead based on discounted revenues and forecast demand,
6 wherein the step of discounting future benefits is based on a future discounting
7 algorithm.

1 24. (Original) The method for server allocation in a Web server "farm" as recited
2 in claim 23, wherein the future discounting algorithm is based on a policy which,
3 when faced with a choice between a guaranteed benefit immediately and a
4 potential benefit in the future, a decision is made by comparing the guaranteed
5 benefit value with a discounted value of the potential future benefit.

1 25. (Original) The method for server allocation in a Web server "farm" as recited
2 in claim 22, wherein the future discounting algorithm is a deterministic algorithm
3 that achieves a competitive ratio of $(1 + 1/L) (L + 1)^{1/L}$, where L is a lookahead
4 factor which models some amount of future demand known to a provider of the
5 resource.

1 26. (Original) The method for server allocation in a Web server "farm" as recited
2 in claim 22, wherein the algorithm is an intermittent reset algorithm that achieves
3 a competitive ratio of $1 + 4/(L-7)$, where L is a lookahead factor which models
4 some amount of future demand known to a provider of the resource.

1 27. (Original) The method for server allocation in a Web server "farm" as recited
2 in claim 23, wherein resource allocation is done to maximize profit.